IN THE CLAIMS

1.   (Currently Amended) In a multi-protocol label switching (MPLS) data network comprised of a plurality of data switches interconnected to form a plurality of data paths to a destination node, a method of routing a first message between a second and a first data switch ~~comprised of the steps of~~ comprising:

establishing a downstream working path for data traffic that includes said first data switch and said second data switch;

establishing a downstream protection path associated with the working path;

establishing   an   upstream   reverse   notification   path associated with the working path for signal traffic from a destination switch in the working path to a protection switch in the working path, the upstream reverse notification path being separate from the protection path ~~and associated with said working path~~;

routing the first message from said second data switch to said first data switch via said upstream reverse notification path, the first message providing a fault status indication for said working path.

2.   (Previously Presented) The data network of claim 1 wherein said upstream reverse notification path is co-incident with said working path through said network.

3.   (Previously Presented) The method of claim 1 wherein a topology of said upstream reverse notification path can be represented by a directed acyclical graph.

4.   (Previously Presented) The method of claim 1 wherein said data switches are asynchronous transfer mode switches that function as label switched routers.

5.   (Original) The method of claim 1 wherein said data switches are internet protocol (IP) routers.

6.   (Original) The method of claim 1 wherein said data switches are digital cross connect switches controlled by MPLS.

7.   (Original) The method of claim 1 wherein said data switches are optical cross connects and switches controlled by MPLS.

8.   (Previously Presented) The method of claim 1 wherein at least one of said data switches maintains a table of incoming link and path identifiers and of outgoing link and path identifiers.

9.   (Original) The method of claim 1 wherein said first data switch is a protection switch element.

10.   (Original) The method of claim 1 wherein said second data switch is a protection merge element.

11. (Currently Amended) In a multi-protocol label switching (MPLS) network comprised of a plurality of switching systems routing data to a destination switching system, a reverse notification network comprised of:

a destination switching system operable to receive downstream data along a working path through at least one data switching system that is upstream from said destination switching system, the destination switching system operable to receive the downstream data along a protection path through at least one data switching system that is upstream from said destination switching system in response to a failure in the working path;

a first upstream switching system operable to provide said downstream data to said destination switching system over said working path;

a first upstream data link operable to couple said destination switching system to said first upstream switching system, said upstream data link being separate from said protection path, said upstream data link being part of an upstream reverse notification path established by and from said destination switching system to at least a protection switching system in said working path, said upstream data link operable to send an upstream reverse notification message from said destination switching system to said first upstream switching system, said upstream reverse notification message providing a fault status for said working path.

12. (Previously Presented) The reverse notification network of claim 11 wherein said first upstream data link is coincident with a downstream data link of said working path.

13. (Previously Presented) The reverse notification network of claim 11 where said destination switching system maintains a table identifying upstream switching systems including said first upstream switching system.

14. (Previously Presented) The reverse notification network of Claim 11, wherein said first upstream switching system is said at least one data switching system.

15. (Previously Presented) The reverse notification network of Claim 11, wherein said destination and first upstream switching systems are any one of asynchronous transfer mode switches that function as label switched routers, internet protocol (IP) routers, digital cross connect switches controlled by MPLS, and optical cross connects and switches controlled by MPLS.

16. (Currently Amended) A system for routing a first message between a second and a first data switch in a network, comprising:

means for establishing a downstream working path that includes said first data switch and said second data switch;

means for establishing a downstream protection path associated with the working path;

means for establishing an upstream reverse notification path associated with the working path for signal traffic from a destination switch in the working path to a protection switch in the working path, the upstream reverse notification path being separate from the protection path and associated with said working path;

means for routing the first message from said second data switch to said first data switch via said upstream reverse notification path, the first message providing a fault status indication for said working path.

17. (Previously Presented) The system of claim 16, wherein said upstream reverse notification path is co-incident with said working path through said network.

18. (Previously Presented) The system of claim 16, wherein said upstream reverse notification path is not co-incident with said working path through said network.

19. (Previously Presented) The system of claim 16, wherein at least one of said first and second data switches includes means for maintaining a table of incoming link and path identifiers and of outgoing link and path identifiers.

20. (Previously Presented) The system of Claim 16, wherein said first and second data switches are any one of asynchronous transfer mode switches that function as label switched routers, internet protocol (IP) routers, digital cross connect switches controlled by MPLS, and optical cross connects and switches controlled by MPLS.